Are there specific antepartum factors and labor complications that predict elevated immediate postpartum Edinburgh Postpartum Depression Scale scores?

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ABSTRACT

Background: Postpartum depression is a common medical condition diagnosed in the weeks after delivery. There are several modifiable risk factors during the antepartum, labor and delivery, and immediate postpartum periods that may influence the likelihood that an individual will develop this condition.
Objective: The purpose of this study was to identify risk factors that may predict an individual's risk of developing postpartum depression.
Methods: We conducted a retrospective cohort study of all deliveries over a 14 month period. Demographic characteristics and complications during pregnancy and delivery were obtained from the electronic medical record. The Edinburg Perinatal Depression Scale (EPDS) was administered to all postpartum women before discharge. Antenatal and delivery characteristic associations with EPDS cutoffs of ≥10 and ≥13 were determined and significant variables were included in a logistic regression to determine predictive factors for elevated immediate postpartum EPDS scores.
Results: A total of 1,913 women had valid immediate postpartum EPDS results. Women with a history of depression, those with a positive drug screen on admission to labor and delivery, those with babies admitted to the neonatal intensive care unit (NICU), and those with alcohol or opioid abuse were found to have increased risk of development of PPD. Logistic regression analysis found that having a positive drug screen (OR 2.54, 95% CI 1.43-4.52) history of depression (OR 3.97, 95% CI 2.44-6.30), alcohol use (OR 5.30, 95% CI 1.39-20.16), and opioid use disorder (OR 8.64, 95% CI 1.06-70.49) predicted EPDS scores ≥10, while having a baby admitted to the NICU (OR 1.70, 95% CI 1.20-2.57), history of depression (OR 4.46, 95% CI 2.81-7.07), opioid use disorder (OR 9.32, 95% CI 1.14-76.39) predicted EPDS scores ≥13.
Conclusion: Several modifiable risk factors were found that could lead to an increased risk of PPD. Early screening and intervention based on risk factors may decrease the likelihood of developing early postpartum depression.

METHODS

- Retrospective cohort study of women who gave birth at Eskenazi Hospital in Indianapolis, IN from January 2, 2018 to February 28, 2019.
- Data were collected from the electronic medical record system data warehouse (Epic) in a de-identified fashion through the honest data brokers at the Regenstrief Institute (Indianapolis, IN).
- Inclusion criteria:
  - women with a live birth who had a completed EPDS in the immediate postpartum period and had complete data for characteristics collected.
- Women with stillborn infants were excluded from the study.
- We collected information on EPDS before discharge, insurance status, tobacco/alcohol/other drug use, history of anxiety or depression, physical/sexual abuse, presence of gestational diabetes, gestational hypertension, pre-eclampsia, preterm labor/birth, premature rupture of membranes, and neonatal intensive care unit (NICU) admission of the baby.
- Multivariable logistic regression (backward LR model) controlling for significant univariate variables

RESULTS

Factors	EPDS < 10 (n=1784)	EPDS ≥ 10 (n=129)	p-value	EPDS <13 (n=1865)	EPDS ≥ 13 (n=48)	p-value
Maternal age (years)	28.0 (6.2)	28.7 (6.9)	0.22	28.0 (6.2)	30.6 (7.0)	0.005
Gestational age at delivery	38.6 (1.7)	38.7 (1.5)	0.55	38.6 (1.7)	38.5 (1.6)	0.67
Insurance status (Medicaid)	1502 (93.6%)	102 (6.4%)	0.28	1567 (97.7%)	37 (2.3%)	0.35
Delivery Method Cesarean Section Vaginal delivery	 408 (92.7%) 1336 (93.2%)	 32 (7.3%) 97 (6.8%)	 0.75	 428 (97.3%) 1397 (97.5%)	 12 (2.7%) 36 (2.5%)	 0.80
Baby admitted to NICU	342 (90.5%)	36 (9.5%)	0.02	360 (95.2%)	18 (4.8%)	0.002
History of Depression	113 (79.6%)	29 (20.4%)	<0.001	129 (90.8%)	13 (9.2%)	<0.001
Edinburgh- Self Harm question positive	2 (0.1%)	10 (7.8%)	<0.001	5 (0.3%)	7 (14.6%)	<0.001
History of Anxiety	1 (100%)	0 (0%)	0.79	1 (100%)	0 (0%)	0.87
Drug screen positive	91 (83.5%)	18 (16.5%)	<0.001	104 (95.4%)	5 (4.6%)	0.15
Tobacco Abuse history	135 (87.7%)	19 (12.3%)	0.003	146 (94.8%)	8 (5.2%)	0.03
Alcohol Abuse history	7 (63.6%)	4 (36.4%)	<0.001	10 (90.9%)	1 (9.1%)	0.16
Opioid Abuse history	2 (50%)	2 (50%)	0.001	3 (75%)	1 (25%)	0.004
Cannabis Abuse history	27 (84.4%)	5 (15.6%)	0.04	30 (93.8%)	2 (6.3%)	0.17
Cocaine Abuse history	27 (84.4%)	5 (15.6%)	0.04	30 (93.8%)	2 (6.3%)	0.17
Gestational Hypertension	49 (94.2%)	3 (5.8%)	0.78	50 (96.2%)	2 (3.8%)	0.53
Gestational Diabetes	136 (93.2%)	10 (6.8%)	0.96	141 (96.6%)	5 (3.4%)	0.46
Pre-eclampsia	32 (86.5%)	5 (13.5%)	0.01	35 (94.6%)	2 (5.4%)	0.26
Sexual Abuse	3 (100%)	0 (0%)	0.64	3 (100%)	0 (0%)	0.78
Preterm birth	125 (7.1%)	10 (7.8%)	0.75	130 (7.0%)	5 (10.4%)	0.37

SUMMARY

- To our knowledge, this retrospective cohort study is the first to evaluate immediate EPDS scores in this way.
- We found that several factors before delivery were associated with high EPDS scores in the immediate postpartum time frame
- In our study, the rate of immediate postpartum depression was 7% , which was less than the average rate of 10-15% found in most studies. This may have been due to the early time of measurement
- Based on the findings of our study, it is reasonable for providers to offer counseling or enhanced screening for depression to women with a positive drug screen, known alcohol or opioid abuse, or those with a history of depression. These are modifiable risk factors for which intervention may reduce the progression to postpartum depression.

CONCLUSIONS

High immediate postpartum EPDS scores can be predicted by several modifiable risk factors and behaviors in the antepartum time frame.

Enhancing services to women with risk factors during pregnancy and while in the hospital for delivery may be able to avoid early-developing PPD.

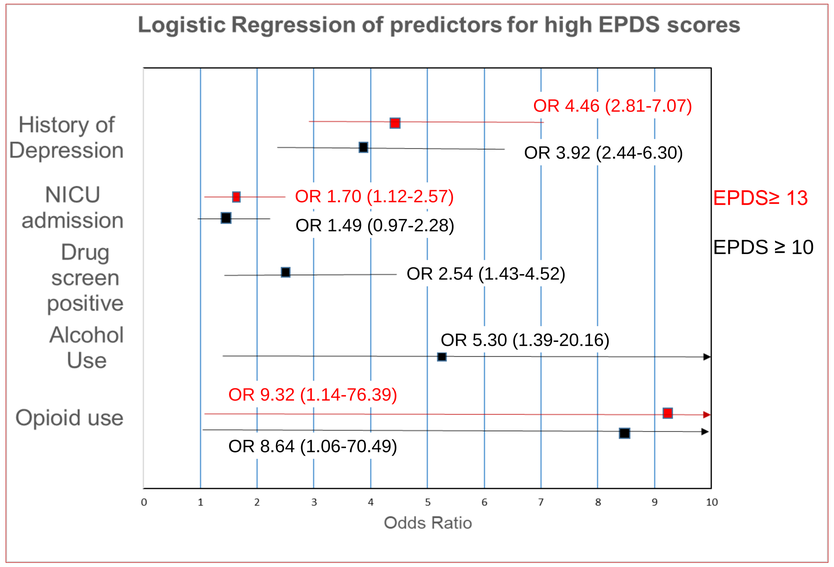
BACKGROUND

Postpartum depression (PPD) is one of the most common medical conditions diagnosed in the postpartum period and is estimated that 10-15% of women will have symptoms of PPD affecting their daily lives.[1] Postpartum depression is defined as depression occurring within the first 12 months after delivery. Through previous research, there have been many factors found to contribute to or predispose an individual to this condition. These include hormonal changes, history of anxiety/depression, drug or alcohol abuse, fatigue, lack of emotional support or stressful life events pre- and post-delivery. [1],[2] Per the American College of Obstetricians and Gynecologists (ACOG) recommendations, screening for depression should occur with a validated tool at least once during the perinatal period and per new ACOG recommendations, assessment for postpartum depression should be performed within 10-14 days post - delivery and also within 4-6 weeks postpartum. [3] Both behavioral and medical therapy should be offered as soon as depression is diagnosed. The Edinburgh Perinatal Depression Scale (EPDS) is the most frequently used screening tool because it is widely available. [1] It can be administered quickly and includes questions pertaining to anxiety symptoms and not constitutional symptoms often seen in the postpartum period (changes in sleep or eating patterns for example). It is a validated tool that is predictive of clinical diagnosis of postpartum depression. [4]

RESULTS

- Within the study period, 2,765 women delivered viable infants with 1,913 (69.2%) having valid EPDS scores and complete data that could be used for analysis.
- Of the 1,913 women in the study population, 129 (6.7%) met criteria for PPD risk based on having an EPDS ≥ 10. Forty-eight women (2.5%) met criteria for PPD using the ≥13 cutoff on the EPDS. Only one woman marked that she thought of hurting herself "Yes, quite often", with 11 (0.006%) marking "sometimes".
- Significant predictors of an EPDS ≥ 10 were: positive drug screen (OR 2.54, 95%CI 1.43-4.52); history of depression (OR 3.97, 95%CI 2.44-6.30); current alcohol use (OR 5.30, 95% CI 1.39-20.16); and opioid use (OR 8.64, 95%CI 1.06-70.49).
- Significant predictors of an EPDS ≥ 13 were: having a baby admitted to the NICU (OR 1.70, 95%CI 1.12-2.57); history of depression (OR 4.46, 95% CI 2.81-7.07); and opioid use (OR 9.32, 95%CI 1.14-76.39).

FINAL PREDICTIVE MODEL



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